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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,994	12/28/2001	Takashi Chuman	Q67877	3777

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EXAMINER

HODGES, MATTHEW P

ART UNIT PAPER NUMBER

2879

DATE MAILED: 08/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/028,994

Applicant(s)

CHUMAN ET AL.

Examiner

Matt P Hodges

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

The disclosure is objected to because of the following informalities:

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Page 11 line 26, the word “of” appears to be improperly entered in the sentence.

Page 14 line 10, page 16 line 9, and page 23 lines 17, 24, and 26, the list “Cr, Cu and Cr” appear to be improperly formed. The list might instead be written “Cr or Cu and Cr” to include the usage of either Cr or Cu with Cr.

Page 14 lines 15 and 16 and page 16 lines 14 and 15, the sentences starting with the word “Alternatively, ...” appear to be an incomplete sentence.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 10, 11, and 13-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Osada et al. (US 6,066,916).

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Regarding claims 1 and 10, Osada discloses (see figure 1) a display device including a substrate (1), a plurality of first electrodes (2) formed on the substrate, a plurality of second electrodes (3) formed on the first electrodes, an insulating layer and an organic layer formed between the two electrodes (not shown), and terminals (21 and 31) formed side by side on the periphery of the display device. (Column 3 lines 17-27) and (Column 3 lines 38-54).

Regarding claim 3, the first group of terminals and the second groups of terminals are alternatively formed side by side on the substrate. Specifically the second group is formed on the middle portion of the peripheral side and the first group is formed both before and after the second group on the same side.

Regarding claims 11 and 13, Osada further discloses both groups of electrodes being formed of a transparent material along with the substrate. (Column 3 lines 27-32).

Regarding claim 14, Osada further discloses the emitting region being a rectangle and the terminals formed on one side of the rectangle. (See figure 1)

Regarding claim 15, Osada further discloses the terminals being connected to the driving circuitry at the edge of the substrate and are therefore exposed to the outside at those points. (Column 3 lines 55-57).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osada et al. (US 6,066,916).

Regarding claim 2, Osada (see figure 7) discloses the use of a first group of electrodes electrically connected to the terminals by means of a wire and a second group of electrodes directly connected to the terminals by the ends of the first electrodes. Osada does not appear to specify the use of a first group of electrodes formed on the substrate being connected directly to the terminals and a second group of electrodes formed on the first group of electrodes and being connected to the terminals. However the applicant fails to identify the use of the first group being connected directly to the terminals instead of the second group to solve any problem or yield any unexpected result that is not within in the scope of the teachings relied upon. Further the inverting of the two electrode layers with respect to the order with which they are placed on the substrate is known in the art as an obvious variation which does not substantially change the manufacturing or device characteristics. It would have been an obvious design choice to one having ordinary skill in the art to use of a first group of electrodes formed on the substrate being connected directly to the terminals and a second group of electrodes formed on the first group of electrodes and being connected to the terminals in the device as disclosed by Osada, since such a modification would involve a mere change in the change in the order of the layers as is known in the art and does not substantially alter the device characteristics.

Regarding claim 12, Osada discloses the invention as claimed, see rejection of claim 10 above, specifically that each line of the first electrode array is composed of a transparent electrode that is associated with each organic EL device on that row of the device. Further Osada discloses the use of wire lead portions for electrically connecting the transparent

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electrodes to the terminal portions. Osada does not appear to specifically state the use of the wire lead portions, or bus lines, to be composed of a metal. However metal is a well-known conductor for use on lead portions where the lead portions are not inside the specific emitting cell. Metal lead lines allow for a lower resistance and greater power efficiency for the display device. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to use metal as the material for the lead lines in the display device as described by Osada in order to minimize resistance and increase power efficiency for the display device.

Claims 1, 4, 5, 6, 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohki et al. (US 6,545,396) in view of Osada et al. (US 6,066,916).

Regarding claims 1, 4, 5, 6, and 8, Ohki discloses (see figure 1) a display device including a back plate substrate (1), first electrodes (2) formed on the substrate and acting as bottom electrodes, second electrodes (4) formed on the first electrodes and also acting as top electrodes, an anode electrode formed on the front plate substrate and luminescent layers formed on the anode electrodes. Ohki further discloses emission sources (3), and insulating layers (25 and 26) formed on top of the bottom electrode. The emission sources are carbon nanotubes formed between the bottom electrode and the insulator layer (26). (Column 4 lines 19-38). Ohki does not appear to specify the use of insulating layers or films between the second electrodes and the first electrodes or between the second electrodes and the back substrate. Ohki does electrically isolate the second electrodes by providing a vacuum between the second electrodes and all other parts of the device. However the use of insulating layers to supplement the vacuum

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disclosed by Ohki advantageously prevents short-circuiting between the cathodes or emission sources and the second electrodes. Specifically the use of insulating layers and films instead of a vacuum helps protect against particulates causing a short circuit. Ohki does not appear to specify the use of a lead structure where the terminals for both the first and second electrodes are on one side of the substrate, however Osada in the same field of endeavor discloses the use of a matrix array where the electrodes are in a similar pattern to the pattern described by Ohki but where the ends of the first electrodes are connected by means of a lead wire to the terminals on the same side of the substrate as the second electrodes' terminals. The use of a single side being used for the driving terminals allows for a greater percentage of display area and avoids the obstacle of requiring two sides of the substrate to be connected to the driving circuit. (Column 1 lines 31-37). Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate both the lead structure where the terminals for both the first and second electrodes are on one side of the substrate as described by Osada and the use of insulating layers or films between the second electrodes and the first electrodes or between the second electrodes and the back substrate into the display device as disclosed by Ohki in order to advantageously allow for a greater percentage of display area and advantageously prevents short-circuiting between the cathodes or emission sources and the second electrodes.

Regarding claim 9, Ohki further discloses the use of insulating layers (16) to separate the first electrodes from the second electrodes. (Column 8 lines 3-13).

Regarding claim 7, Ohki in view of Osada does not appear to specify the use of luminescent layers formed on the surface of the front side substrate where the anode is formed on the luminescent layers. However the applicant fails to identify the use of luminescent layers

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formed on the surface of the front side substrate where the anode is formed on the luminescent layers as compared to luminescent layers formed directly on the anode to solve any problem or yield any unexpected result that is not within in the scope of the teachings relied upon. It would have been an obvious design choice to one having ordinary skill in the art to use luminescent layers formed on the surface of the front side substrate where the anode is formed on the luminescent layers to the display device as described by Ohki in view of Osada, since such a modification would involve a mere change in the order of the previously disclosed layers.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nicoll (US 2,967,248) discloses the use of EL devices driven from one side of the substrate.

Morita et al (US 6,259,200) discloses alternate uses of insulating films around the bus electrodes and first electrodes.

### *Contact Information*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matt P Hodges whose telephone number is (703) 305-4015. The examiner can normally be reached on 7:30 AM to 4:00 PM M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (703) 305-4794. The fax phone numbers for the




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- organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

mph   
July 28, 2003

  
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